IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Josh Judd	§	Customer No.: 85197
Serial No.: 10/699,603	§	Art Unit: 2471
Filed: October 31, 2003	§	Examiner: Mohammad Sajid Adhami
For: NETWORK PATH TRACING METHOD FOR MULTI-LEVEL SWITCHES	§	Docket No. 112-0139US

APPEAL BRIEF

Via USPTO EFS
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450
Mail Stop: Appeal Briefs – Patents

Appellant hereby submits this Appeal Brief in connection with the above-identified application.

TABLE OF CONTENTS

For: NETWORK PATH TRACING METHOD FOR MULTI-LEVEL SWITCHES 1
I. REAL PARTY IN INTEREST 3
II. RELATED APPEALS AND INTERFERENCES 4
III. STATUS OF CLAIMS 5
IV. STATUS OF AMENDMENTS 6
V. SUMMARY OF CLAIMED SUBJECT MATTER 7
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL 10
VII. ARGUMENT 11
A. The Rejections Under 35 U.S.C. § 112, ¶ 2 of Claims 2-18, 65-68, 82-85 and 99-102 11
B. The Rejections Under 35 U.S.C. § 103(a) of Claims 1, 8-13, 18, 55, 62, 63, 65-67, 72, 73, 80-84, 89, 90, 97-101 and 106 as Unpatentable Over Wang in view of Ramanan . 12
1. The Rejections of Independent Claims 1, 55, 73 and 90 12
2. Dependent Claims 9, 63, 81 and 98 16
3. Dependent Claims 12, 66, 83 and 100 17
4. Dependent Claims 13, 67, 84 and 101 18
5. Dependent Claims 18, 72, 89 and 106 20
C. The Rejections Under 35 U.S.C. § 103(a) of Claims 2-7, 56-61, 74-79 and 91-96 as Unpatentable Over Wang in view of Ramanan as applied to claims 1, 55, 73 and 90 above, and further in view of Perlman and Soumiya 20
D. The Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 14, 16, 32, 34, 50, 52, 68 and 70 as Unpatentable over Wang in view of Ramanan as applied to claims 1, 11, 55, 65, 73, 82, 90 and 99 and further in view of Fredericks 21
E. The Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 15, 33, 51 and 69 as Unpatentable over Wang in view of Ramanan as applied to claims 1, 55, 73 and 90 and further in view of Lee 21
F. The Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 17, 35, 53 and 71 as Unpatentable over Wang in view of Ramanan and Suzuki as applied to claims 1, 55, 73 and 90 and further in view of Hongal 21
G. Conclusion 22
VIII. CLAIMS APPENDIX 23
IX. EVIDENCE APPENDIX 33
X. RELATED PROCEEDINGS APPENDIX 34

I. REAL PARTY IN INTEREST

Brocade Communications Systems, Inc. is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Appeal Briefs were filed on July 30, 2010 and February 9, 2011 in Application No. 10/699,588, which is a related case. Prosecution was reopened in response to each Appeal Brief.

III. STATUS OF CLAIMS

Originally filed claims:	1-72.
Added claims:	73-106.
Claim cancellations:	19-54 and 64.
Presently pending claims:	1-18, 55-63 and 65-106.
Presently appealed claims:	1-18, 55-63 and 65-106.
Presently allowed claims:	None.
Presently objected claims:	None.

IV. STATUS OF AMENDMENTS

No amendments have been made to the subject application subsequent to the Final Office Action of February 18, 2011 (hereinafter "Final Office Action").

V. SUMMARY OF CLAIMED SUBJECT MATTER

This section provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal. Each element of the claims is identified with a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

In accordance with the invention of independent claim 1, for example, what is claimed is:

A switch **(Fig. 7, switch 700; ¶ [0053])** comprising:

a plurality of ports **(Fig. 7; Fig. 2A, ports 22, 24, 26, 28; ¶ [0019])**;

a fabric manager **(Fig. 2A, fabric manager 38; ¶¶ [0018], [0022])** coupled to the plurality of ports, the fabric manager configured to add information to the payload of a frame **(Fig. 6, steps 628, 622, 626; ¶¶ [0034], [0040], [0047])**; and

a plurality of interconnected switching units **(Fig. 7, edge switching units 702, 704, core switching unit 706; ¶ [0053])** coupled to the plurality of ports, each switching unit performing routing and switching functions, so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager is configured to add information to the payload of a frame traversing the plurality of switching units, the information including receive port identity, transmit port identity **(¶ [0034])**, switch identity **(¶ [0034])** and data about each of the traversed switching units **(¶ [0034])** and the interconnections **(¶ 0054)** between the traversed switching units when the frame traverses multiple switching units.

In accordance with the invention of independent claim 55, for example, what is claimed is:

A method comprising:

adding information to the payload of a frame received by a switch **(Fig. 6, steps 628, 622, 626; ¶¶ [0034], [0040], [0047])**, the information including receive port

identity **(¶ [0034])**, transmit port identity **(¶ [0034])**, switch identity **(¶ [0034])** and data about each of the traversed switching units **(¶ [0034])** within the switch and the interconnections **(¶ [0054])** between the traversed switching units when a frame traverses multiple switching units, wherein each switching unit performs routing and switching functions **(¶ [0053])**.

In accordance with the invention of independent claim 73, for example, what is claimed is:

A switch **(Fig. 7, switch 700; ¶ [0053])**, comprising:

a plurality of ports **(Fig. 7; Fig. 2A, ports 22, 24, 26, 28; ¶¶ [0019])**;

a plurality of switching units interconnecting **(Fig. 7, edge switching units 702, 704, core switching unit 706; ¶ [0053])** said plurality of ports, each switching unit performing routing and switching functions; and

means for adding information to the payload of a frame **(Fig. 2A, fabric manager 38; ¶¶ [0018], [0022])** received by the switch, the information including receive port identity **(¶ [0034])**, transmit port identity **(¶ [0034])**, switch identity **(¶ [0034])** and data about each of the traversed switching units **(¶ 0034)** of the plurality of switching units within the switch and the interconnections **(¶ [0054])** between the traversed switching units when the frame traverses multiple switching units.

In accordance with the invention of independent claim 90, for example, what is claimed is:

A non-transitory computer-readable storage medium comprising software that can be executed on a processor **(Fig. 2A, fabric manager 38; ¶¶ [0018], [0022])** to cause the processor to:

add information to the payload of a frame received by a switch **(Fig. 6, steps 628, 622, 626; ¶¶ [0034], [0040], [0047])**, the information including receive port identity **(¶ [0034])**, transmit port identity **(¶ [0034])**, switch identity and data about each of the traversed switching units of a plurality of switching units **(¶ [0034])** within the switch

and the interconnections **(¶ [0054])** between the traversed switching units when a frame traverses multiple switching units, wherein each switching unit performs routing and switching functions **(¶ [0053])**.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- Whether claims 2-18, 65-68, 82-85 and 99-102 are indefinite under 35 U.S.C. § 112, second paragraph for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.
- Whether claims 1, 8-13, 18, 55, 62, 63, 65-67, 72, 73, 80-84, 89, 90, 97-101 and 106 are unpatentable under 35 U.S.C. § 103(a) over Wang (U.S. Pat. No. 6,538,997) in view of Ramanan (U.S. Pat. App. No. 2003/0095509).
- Whether claims 2-7, 56-61, 74-79 and 91-96 are unpatentable under 35 U.S.C. § 103(a) over Wang in view of Ramanan as applied to claims 1, 55, 73 and 90 above, and further in view of Perlman (U.S. Pat. No. 5,844,902) and Soumiya (U.S. Pat. No. 6,671,257).
- Whether claims 14, 16, 32, 34, 50, 52, 68 and 70 are unpatentable under 35 U.S.C. § 103(a) over Wang in view of Ramanan as applied to claims 1, 11, 55, 65, 73, 82, 90 and 99 above and further in view of Fredericks (U.S. Pat. No. 6,347,334).
- Whether claims 15, 33, 51 and 69 are unpatentable under 35 U.S.C. § 103(a) over Wang in view of Ramanan as applied to claims 1, 55, 73 and 90 above and further in view of Lee (U.S. Pat. Pub. No. 2003/0099194).
- Whether claims 17, 35, 53 and 71 are unpatentable under 35 U.S.C. § 103(a) over Wang in view of Ramanan and Suzuki as applied to claims 1, 55, 73 and 90, and further in view of Hongal (U.S. Pat. App. Pub. No. 2005/0053006).

VII. ARGUMENT

The claims do not stand or fall together. Instead, Appellant presents separate arguments for various independent and dependent claims. After a concise discussion of cited art, each of these arguments is separately argued below and presented with separate headings and subheading as required by 37 CFR § 41.37(c)(l)(vii).

A. The Rejections Under 35 U.S.C. § 112, ¶ 2 of Claims 2-18, 65-68, 82-85 and 99-102

Claims 2-18, 65-68, 82-85, and 99-102 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention.

The Final Office Action rejected claim 1, as not being clear if the limitation "a frame" used in both lines 6 and 9 referred to the same frame or two different frames. Final Office Action, p. 2. Appellant submits that the use is proper as the frame referenced in line 6 may not always be the frame reference in line 9. The recitation in line 6 is "so that a frame may traverse multiple switching units in the switch." The recitation starting at line 9 is "add information to the payload of a frame traversing the plurality of switching units." Because the frame referenced in line 6 may not traverse multiple switching units, that frame would not be the frame referenced in line 9. Thus, there are instances where the frames of lines 6 and 9 may be different. Therefore, the frame in line 6 cannot be a proper antecedent for the frame in line 9. This results in the need to use "a frame" in both locations. Appellant submits that the limitations are clear when the full language and the various alternatives are considered.

Claims 11, 13, 65, 67, 82, 84, 99 and 101 were rejected because of the recitation of the phrase "normal routing rules." Final Office Action, p. 2. The Final Office Action asserted that it is not clear what "normal routing rules" refers to. Appellant respectfully disagrees. The specification provides ample support and explanation for normal routing rules in the Fibre Channel protocol. Moreover these normal routing rules in a Fibre Channel protocol are well known to those skilled in the art.

The specification describes that routing of information between the switches occurs according "to a routing protocol called Fibre Channel Shortest Path First (FSPF)." Published

Application, ¶ [0006]. The FSPF, the specification explains, uses information about costs of routing through all inter-switch links in the network and uses that information to compute a routing table for each respective switch. "This routing table exists in each switch and contains the output port a particular frame may exit the respective switch on." *Id.* The specification goes on to explain that in a situation where a source routing flag is set, the method may "not use the switches' inherent routing as defined by the FSPF specifications and its topology database." Emphasis added. *Id.* at ¶ [0050]; see also ¶ [0051]. Although the phrase "normal routing rules" may not have been used in verbatim in the specification, a thorough reading of the specification clearly shows that the FSPF is viewed as the normal routing protocol used in Fibre Channel.

Moreover, a person of ordinary skill in the art of Fibre Channel Networks knows that Fibre Channel normally uses a set of routing rules referred to as the FSPF. Thus, normal routing rules are described in the specification and are well known in the art. Accordingly, Appellant respectfully requests reversal of the rejections of claims 11, 13, 65, 67, 82, 84, 99 and 101.

Claims 2-12, 14-18, 66, 68, 83, 85, 100 and 102 depend from claims 1, 11, 13, 65, 67, 82, 84, 99 and 101 and were rejected based on their dependency on a rejected claim. Thus, for at the same reasons as discussed above with respect to claims 1, 11, 13, 65, 67, 82, 84, 99 and 101, claims 2-12, 14-18, 66, 68, 83, 85, 100 and 102 are also not indefinite. Accordingly, Appellant respectfully requests reversal of the rejections of claims 2-12, 14-18, 66, 68, 83, 85, 100 and 102.

B. The Rejections Under 35 U.S.C. § 103(a) of Claims 1, 8-13, 18, 55, 62, 63, 65-67, 72, 73, 80-84, 89, 90, 97-101 and 106 as Unpatentable Over Wang in view of Ramanan

1. The Rejections of Independent Claims 1, 55, 73 and 90

Claim 1 recites, among other things:

> **A switch** comprising:
>
> a plurality of interconnected switching units coupled to the plurality of ports, each switching unit performing routing and switching functions, so that a frame may traverse multiple switching units in the switch,
>
> wherein the fabric manager is configured to add information to the payload of a frame traversing the plurality of switching units, the information

including receive port identity, transmit port identity, switch identity and **data about each of the traversed switching units and the interconnections between the traversed switching units** when the frame traverses the multiple switching units.

Emphasis added. The other independent claims include similar language. In rejecting the independent claims, the Final Office Action points to Wang as disclosing almost all claim limitations except for the "multiple switching unites in a switch, each switching unit performing routing and switching functions." Final Office Action, p. 3. This limitation, the Office Action asserts is taught by Ramanan. Final Office Action, p. 4. Appellant respectfully disagrees.

First, when going through the limitations of claim 1, the Examiner completely ignores the preamble. By ignoring the preamble, the Examiner misses an important point of distinction between claim 1 and the system of Wang. The preamble recites a switch. Claim 1 requires a two level structure which includes a switch having within itself multiple interconnected switching units. This is illustrated in Figure 7 of the Specification (reproduced below).

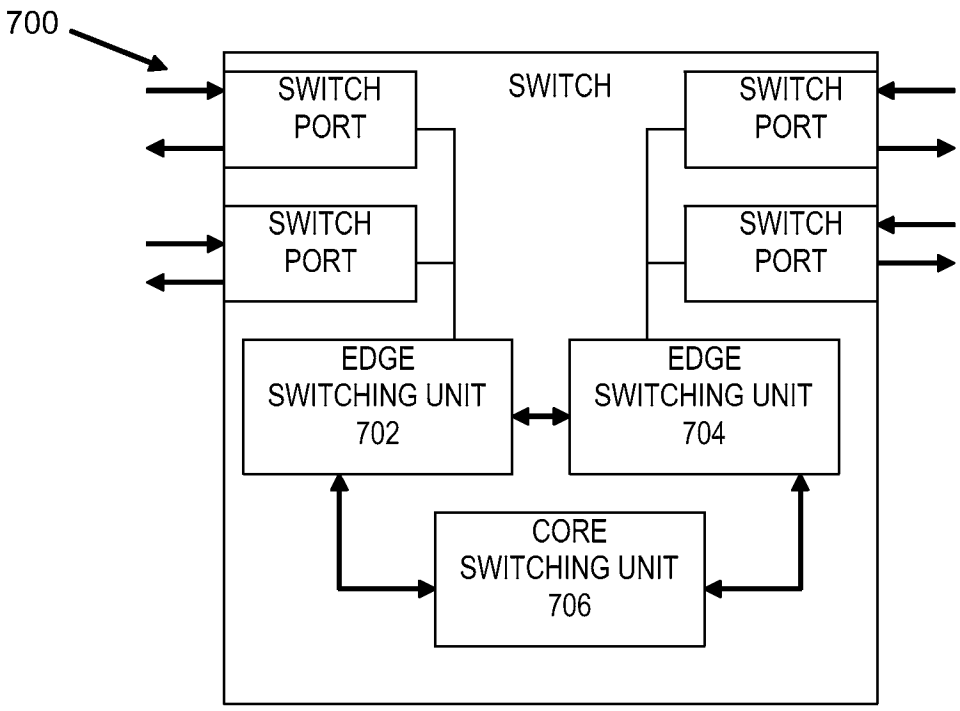

FIG. 7

As illustrated in Figure. 7, the system includes a switch comprising a plurality of ports and multiple switching units. The multiple switching units and their interconnections are located inside the switch. The Final Office Action states:

> Wang further discloses *a plurality of interconnected switching units coupled to the plurality of ports, each switching unit performing routing and switching functions* (Fig.2 where the nodes are interconnected switching units coupled to the plurality of ports on the nodes).

Final Office Action, p. 3. However, Fig. 2 of Wang (reproduced below) is merely "a schematic of a network with a layer-2 trace of a multicast path." Wang, Col. 4, ll. 1-2.

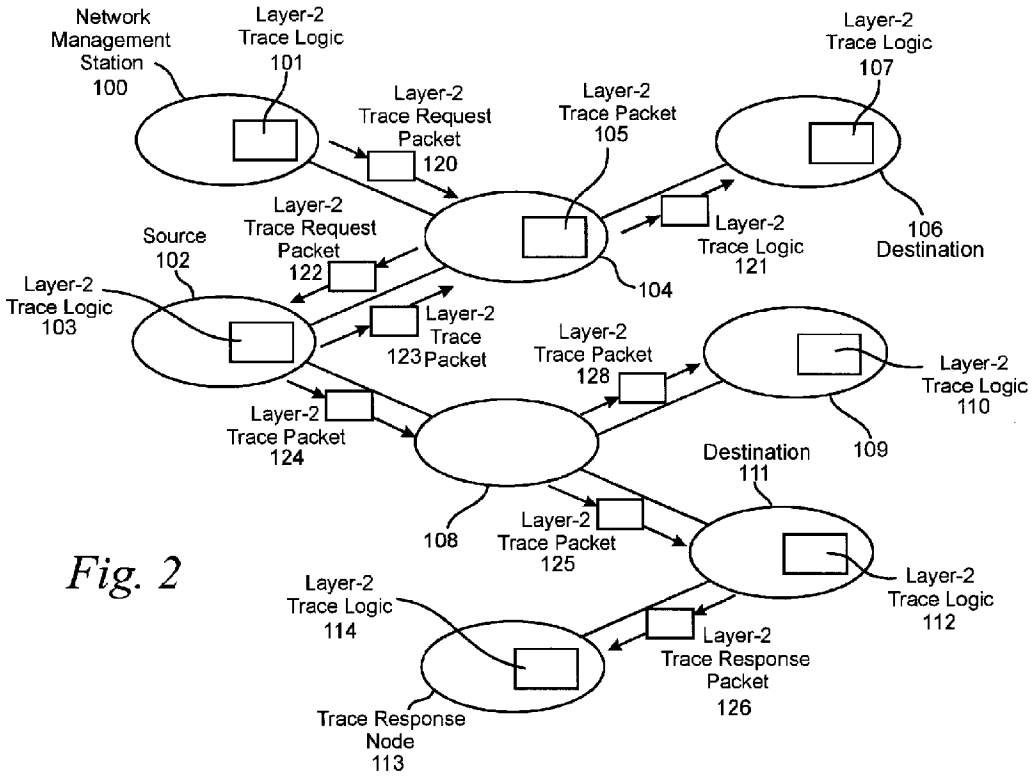

Fig. 2

Fig. 2 does not show multiple switching units inside a switch. In fact, there is nothing in Wang that suggests the nodes shown in Fig. 2 act as interconnected switching units that are located within a switch and the Final Office Action does not provide any support for this assertion. In contrast, the Final Office Action goes on to admit, on the next page, that "Wang does not explicitly disclose multiple switching unites in a switch." Final Office Action, p. 4.

Despite this admission and inconsistency, the Final Office Action asserts that Wang discloses adding information to the payload of the frame where the information includes data about each of the traversed switching units and the interconnections between the traversed switching units. Final Office Action, pp. 3-4. This is completely inconsistent with the Office Action's admission. If Wang does not disclose multiple switching units, how could it then disclose including information about the switching units and the interconnections between them in the payload of the frame?

Moreover, the portion of Wang pointed in the Final Office Action does not disclose adding information about multiple switching units and the interconnections between them to the frame traversing the multiple switching units. The Final Office Action points to various statements in Wang that discuss adding information such as port identifier data for the node that receives a packet as disclosing the above claim limitation. Final Office Action, p. 4. For example, the Final Office Action refers to the statement that "the bridges will add their respective identifiers such as their respective MAC addresses or other internal identifiers" as disclosing adding information about the switching units and their interconnections. *Id.* However, the bridges discussed in Wang are not the same as the switching units of the claim. At best, the bridges could represent switches and the quoted statement of Wang shows that each bridge will add information about the input port of the bridge to the packet. All of the citations of Wang referred to in the Final Office Action point to either adding a MAC address or other port identifier to the packet. The MAC address or port identifier only provides information on the entry point to the switch. It has nothing to do with information about the internal structure of the switch, i.e. the switching units inside a switch and how they are interconnected.

Wang is simply silent about the internal structure of the bridges it discusses, because Wang relates to a tracing frame which traces a network path between bridges and has nothing to

do with what goes on inside a switch. As admitted in the Final Office Action, Wang does not disclose multiple switching units within a switch and it does not disclose adding information "to the payload of a frame traversing the plurality of switching units, the information including ... data about each of the traversed switching units and the interconnections between the traversed switching units when the frame traverses the multiple switching units," as recited in claim 1.

For at least these reasons, Appellant respectfully submits that neither Wang nor Ramanan, either alone or in combination, teach or suggest all of the limitations of independent claims 1, 55, 73 and 90. Appellant therefore respectfully submits that independent claims 1, 55, 73 and 90 are not rendered obvious under 35 U.S.C. § 103(a) by any of the cited art, and thus respectfully requests reversal of the rejection of claims 1, 55, 73 and 90 and their dependent claims.

2. Dependent Claims 9, 63, 81 and 98

In rejecting dependent claims 9, 63, 81 and 98 as allegedly obvious over the cited art, it was stated in the Office Action that,

> Wang discloses *adding information to the payload of the frame when the frame is traveling from the original source to the original destination and from the original destination to the original source* (Col.3 lines 32-39 This response packet includes information regarding the path that was taken by the respective trace packets and Col.3 lines 65-67the bridges will add their respective identifiers such as their respective MAC addresses, or other internal identifiers and Col.4 lines 14-20 The data added to the packet include an identifier of the node. The data may include other information such as a port on the node at which the trace packet was received and transmitted).

Final Office Action, p. 8. Appellant traverses the rejections of the claims, noting that Wang does not teach or suggest adding information to a frame when the frame is sent from the packet's original destination back to its original source

The Final Office Action states that Wang teaches this limitation by disclosing a trace response packet which is sent in response to a trace request packet. Appellant respectfully disagrees. The claims require that a frame travel from an original source to an original

destination (see claims 8, 62, 80, and 97, from which claims 9, 63, 81, and 98 depend, respectively), that the same frame travel back from the original destination to the original source, and that information be added to the frame each way it travels. The trace response packet does not meet these requirements, as the response packet is not the same is the original packet sent from the original source to the destination. By definition, the response packet of Wang is a response to the frame request packet sent from the source to the destination. The response packet is not the same as the frame request packet. Thus, even though Wang may teach adding information to a frame traveling from the destination to the source, it does not disclose the limitations of a claims 9, 63, 81, and 98 because the claims require that the same frame sent from the source to the destination travel back to the source.

Wang thus does not teach or suggest all of the limitations of claims 9, 63, 81 and 98. Appellant therefore respectfully requests reversal of the rejections of these claims.

3. Dependent Claims 12, 66, 83 and 100

In rejecting dependent claims 12, 66, 83 and 100 as allegedly obvious over the cited art, it was stated in the Final Office Action that,

> Wang discloses *selecting the transmit port based on source routing rules used for frames having information added to the payload of the frame* (Fig.2 where the packets are routed based on information in the packet and Col.3 lines 62-64 The bridges that have layer-2 trace logic look at the contents of the packets and determine the actions that they should take upon the packet and Col.1 lines 45-60 the packet has a layer-2 payload that includes an address corresponding to a node in the set of destination nodes).

Final Office Action, p. 9.

Wang, column 3, lines 56-66 are provided here to place the citation of the Final Office Action in context.

> header. The trace packet is addressed directly to the next bridge in the path. A special MAC address is used to address the packet to the next bridge in the path. This MAC address is interpreted as a sink so that the respective bridges in the path do not merely automatically forward the packet. The MAC address causes the respective bridges to act upon the packet rather than simply forwarding it. The bridges that have layer-2 trace logic look at the contents of the packet and determine the actions that they should take upon the packet. For example, the bridges will add their respective identifiers, such as their respective MAC addresses, or other internal identifiers.

Quoting the citation: "[t]he MAC address causes the respective bridges to act upon the packet rather than simply forwarding it.... For example, the bridge will add their respective identifiers ...." This indicates that "acting upon the packet" is not related to "selecting the transmit port based on source routing rules." The routing, i.e. selecting the transmit port, is entirely independent of the "acting upon the packet." The cited quotation indicates "a special MAC address is used to address the packet to the next bridge in the path." This MAC address is not obtained based on source routing information in the packet itself, as required to be source routed, where information specifying each hop is provided in the packet at the original source, but is applied merely due to the packet type.

When the full context of the citation of Wang is considered, it is very clear that "look at the contents of the packet and determine the actions that they should take" is specifically contrasted to routing, as indicated by the use of a special MAC address and the indication that they "do not merely automatically forward the packet." Wang thus does not teach or suggest all of the limitations of claims 12, 66, 83 and 100. Appellant thus respectfully requests reversal of the rejections of these claims.

4. Dependent Claims 13, 67, 84 and 101

In rejecting dependent claims 13, 67, 84 and 101 as allegedly obvious over the cited art, it was stated in the Final Office Action that,

> Wang discloses *using normal routing rules used for frames not having information added to the payload of the frame if the source routing information does not indicate a device directly connected to the switch* (Col.3 lines 58-59 This MAC address is interpreted as a sink and Col.3 lines 62-64 The bridges that have layer-2 trace logic look at the contents of the packets and determine the actions that they should take upon the packet).

Final Office Action, p. 9.

The Final Office Action asserts that the limitation "wherein normal routing rules used for frames not having information added to the payload of the frame are used if the source routing information does not indicate a device directly connected to the transmit port" is disclosed in Wang by teaching that the packet is forwarded based on the information it contains. Appellant respectfully traverses the rejections, noting that Wang does not teach or suggest any specific method for performing the forwarding taught.

Appellant first submits that the arguments made above with respect to claims 12, 66, 83 and 100 apply equally to these claims as the same citation to Wang, which does not relate to routing, is used.

Appellants further submit that the use of identical citations to Wang to reject claims 12, 66, 83 and 100 and claims 13, 67, 84 and 101 is clearly improper. Claim 12 requires "selecting the transmit port based on source routing rules." Claim 13 requires "using normal routing rules … if the source routing information does not indicate a device directly connected to the switch." Thus claim 13 requires using different routing rules than claim 12, yet an identical citation, which does not teach use of any particular routing rule, is used to reject both claims. This is improper on its face.

For at least these reasons, Appellant submits that none of the cited art, either alone or together, teaches or suggests all of the limitations of dependent claims 13, 67, 84 and 101, and thus does not render the claims obvious. Appellant therefore respectfully requests reversal of the rejections of these claims.

5. Dependent Claims 18, 72, 89 and 106

In rejecting dependent claim 18, 72, 89 and 106 as allegedly obvious over the cited art, it was stated in the Final Office Action that,

> Wang discloses *determining if the switch was the original source of the frame, and if so, to capture the frame* (Col.3 lines 62-64 The bridges that have layer-2 trace logic look at the contents of the packets and determine the actions that they should take upon the packet).

Final Office Action, p. 9.

Appellant respectfully traverses the rejections, noting that there is no basis whatsoever for interpreting the packet inspection and action determination by the bridges of Wang as teaching or even suggesting something as specific as the capture of a frame if a switch receiving the frame is the original source of the frame, as required by the claims. The Final Office Action asserts that "if a packet is transmitted back to the source, then once the source receives the packet it will capture the packet." Final Office Action, p. 16. This statement is a mere unsupported assertion. The Examiner has not provided any support for this assertion and Wang is too high level to provide any suggestion this detailed.

For at least these reasons, Appellant submits that none of the cited art, either alone or together, teaches or suggests all of the limitations of dependent claims 18, 72, 89 and 106, and thus does not render the claims obvious. Appellant therefore respectfully requests reversal of the rejections of these claims.

C. The Rejections Under 35 U.S.C. § 103(a) of Claims 2-7, 56-61, 74-79 and 91-96 as Unpatentable Over Wang in view of Ramanan as applied to claims 1, 55, 73 and 90 above, and further in view of Perlman and Soumiya

Appellant notes that because the dependent claims 2-7, 56-61, 74-79 and 91-96 each depends upon one of independent claims 1, 55, 73 or 90, and thus include all of the limitations of the independent claims upon which they respectively depend upon, dependent claims 2-7, 56-61, 74-79 and 91-96 are each also not rendered obvious under 35 U.S.C. § 103(a) for at least the same reasons as those presented above. The Examiner therefore erred in rejecting these claims

and Appellant respectfully requests reversal of the rejections of claims 2-7, 56-61, 74-79 and 91-96.

D. The Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 14, 16, 32, 34, 50, 52, 68 and 70 as Unpatentable over Wang in view of Ramanan as applied to claims 1, 11, 55, 65, 73, 82, 90 and 99 and further in view of Fredericks

Appellant notes that because the dependent claims 14, 16, 32, 34, 50, 52, 68 and 70 each depends upon one of independent claims 1 or 55, and thus include all of the limitations of the independent claims upon which they respectively depend upon, dependent claims 14, 16, 32, 34, 50, 52, 68 and 70 are each also not rendered obvious under 35 U.S.C. § 103(a) for at least the same reasons as those presented above. The Examiner therefore erred in rejecting these claims and Appellant respectfully requests reversal of the rejections of claims 14, 16, 32, 34, 50, 52, 68 and 70.

E. The Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 15, 33, 51 and 69 as Unpatentable over Wang in view of Ramanan as applied to claims 1, 55, 73 and 90 and further in view of Lee

Appellant notes that because the dependent claims 15, 33, 51 and 69 each depends upon one of independent claims 1 or 55, and thus include all of the limitations of the independent claims upon which they respectively depend upon, dependent claims 15, 33, 51 and 69 are each also not rendered obvious under 35 U.S.C. § 103(a) for at least the same reasons as those presented above. The Examiner therefore erred in rejecting these claims and Appellant respectfully requests reversal of the rejections of claims 15, 33, 51 and 69.

F. The Rejections Under 35 U.S.C. § 103(a) of Dependent Claims 17, 35, 53 and 71 as Unpatentable over Wang in view of Ramanan and Suzuki as applied to claims 1, 55, 73 and 90 and further in view of Hongal

Appellant notes that because the dependent claims 17, 35, 53 and 71 each depends upon one of independent claims 1 or 55, and thus include all of the limitations of the independent claims upon which they respectively depend upon, dependent claims 17, 35, 53 and 71 are each also not rendered obvious under 35 U.S.C. § 103(a) for at least the same reasons as those

presented above. The Examiner therefore erred in rejecting these claims and Appellant respectfully requests reversal of the rejections of claims 17, 35, 53 and 71.

G. Conclusion

Appellant believes that no extensions of time or fees are required, beyond those that may otherwise be provided in documents accompanying this response. Nonetheless, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Wong Cabello's Deposit Account No. 50-1922, referencing docket number 112-0139US.

Respectfully submitted,

May 26, 2011

\Azadeh Khadem

Azadeh Khadem, Reg. No. 57,094
Wong, Cabello, Lutsch,
Rutherford & Brucculeri, L.L.P.
20333 SH 249, Suite 600
Houston, TX 77070
(832) 446-2461 (direct line)
(832) 446-2424 (facsimile)
wcpatent@counselip.com

Filed Electronically

VIII. CLAIMS APPENDIX

1. (Previously Presented) A switch comprising:

a plurality of ports;

a fabric manager coupled to the plurality of ports, the fabric manager configured to add information to the payload of a frame; and

a plurality of interconnected switching units coupled to the plurality of ports, each switching unit performing routing and switching functions, so that a frame may traverse multiple switching units in the switch,

wherein the fabric manager is configured to add information to the payload of a frame traversing the plurality of switching units, the information including receive port identity, transmit port identity, switch identity and data about each of the traversed switching units and the interconnections between the traversed switching units when the frame traverses the multiple switching units.

2. (Previously Presented) The switch of claim 1, the information further including the speed of the receive port and the link cost of a link connected to the transmit port.

3. (Previously Presented) The switch of claim 1, the information further including transmit and receive rates of the receive port and the transmit port.

4. (Original) The switch of claim 3, wherein the transmit and receive rates are based on a first defined period.

5. (Previously Presented) The switch of claim 4, the information further including transmit and receive rates of the receive port and the transmit port based on a second defined period, the second defined period being greater than the first defined period.

6. (Previously Presented) The switch of claim 5, the information further including the number of frames transmitted and received by the receive port and the transmit port.

7. (Previously Presented) The switch of claim 4, the information further including the number of frames transmitted and received by the receive port and the transmit port.

8. (Previously Presented) The switch of claim 1, wherein the fabric manager is configured to add the information to the payload of the frame when the frame is traveling from an original source to an original destination.

9. (Original) The switch of claim 8, wherein the fabric manager is configured to add the information to the frame when the frame is traveling from the original destination to the original source.

10. (Original) The switch of claim 1, wherein a node device is connected to one of the plurality of ports and wherein the fabric manager is configured to transmit the frame to the node device.

11. (Previously Presented) The switch of claim 1, wherein the fabric manager is configured to select the transmit port based on normal routing rules used for frames not having information added to the payload of the frame.

12. (Previously Presented) The switch of claim 11, wherein the fabric manager is configured to select the transmit port based on the source routing information used for frames having information added to the payload of the frame.

13. (Previously Presented) The switch of claim 12, wherein the fabric manager is configured to use normal routing rules used for frames not having information added to the payload of the frame if the source routing information does not indicate a device directly connected to the switch.

14. (Previously Presented) The switch of claim 11, wherein the switch is a Fibre Channel switch, wherein the frame is destination addressed to a well known address, and

wherein the fabric manager is configured to determine a true destination address by retrieving data from the frame payload.

15. (Previously Presented) The switch of claim 1, wherein the fabric manager is configured to transmit the frame over all of a plurality of equal cost routes.

16. (Original) The switch of claim 1, wherein the switch is a Fibre Channel switch and the frame is an extended link services frame.

17. (Original) The switch of claim 1, wherein the fabric manager is configured to determine if the switch is the original destination of the frame, and if so, modify the frame to cause it to return to the original source.

18. (Previously Presented) The switch of claim 1, wherein the fabric manager is configured to determine if the switch was the original source of the frame, and if so, to capture the frame.

19. – 54. (Cancelled)

55. (Previously Presented) A method comprising:

adding information to the payload of a frame received by a switch, the information including receive port identity, transmit port identity, switch identity and data about each of the traversed switching units of a plurality of switching units within the switch and the interconnections between the traversed switching units when a frame traverses multiple switching units, wherein each switching unit performs routing and switching functions.

56. (Previously Presented) The method of claim 55, the information further including the speed of the receive port and the link cost of a link connected to the transmit port.

57. (Previously Presented) The method of claim 55, the information further including transmit and receive rates of the receive port and the transmit port.

58. (Original) The method of claim 57, wherein the transmit and receive rates are based on a first defined period.

59. (Previously Presented) The method of claim 58, the information further including transmit and receive rates of the receive port and the transmit port based on a second defined period, the second defined period being greater than the first defined period.

60. (Previously Presented) The method of claim 59, the information further including the number of frames transmitted and received by the receive port and the transmit port.

61. (Previously Presented) The method of claim 58, the information further including the number of frames transmitted and received by the receive port and the transmit port.

62. (Previously Presented) The method of claim 55, wherein the information is added to the payload of the frame when the frame is traveling from an original source to an original destination.

63. (Original) The method of claim 62, wherein the information is added to the frame when the frame is traveling from the original destination to the original source.

64. (Cancelled)

65. (Previously Presented) The method of claim 55, wherein the transmit port is selected based on normal routing rules used for frames not having information added to the payload of the frame.

66. (Previously Presented) The method of claim 65, wherein the transmit port is selected based on the source routing information used for frames having information added to the payload of the frame.

67. (Previously Presented) The method of claim 66, wherein normal routing rules used for frames not having information added to the payload of the frame are used if the source routing information does not indicate a device directly connected to the transmit port.

68. (Previously Presented) The method of claim 65, wherein the frame is destination addressed to a Fibre Channel well known address, and wherein a true destination address is determined by retrieving data from the frame payload.

69. (Previously Presented) The method of claim 55, wherein the frame is transmitted over all of a plurality of equal cost routes.

70. (Previously Presented) The method of claim 55, wherein the frame is a Fibre Channel extended link services frame.

71. (Previously Presented) The method of claim 55, further comprising:

determining if the frame is at the original destination of the frame, and if so, modifying the frame to cause it to return to the original source.

72. (Previously Presented) The method of claim 55, further comprising:

determining if the frame is at the original source of the frame, and if so, to capturing the frame.

73. (Previously Presented) A switch, comprising:

a plurality of ports;

a plurality of switching units interconnecting said plurality of ports, each switching unit performing routing and switching functions; and

means for adding information to the payload of a frame received by the switch, the information including receive port identity, transmit port identity, switch identity and data about each of the traversed switching units of the plurality of switching units within the switch and the interconnections between the traversed switching units when the frame traverses multiple switching units.

74. (Previously Presented) The switch of claim 73, the information further including the speed of the receive port and the link cost of a link connected to the transmit port.

75. (Previously Presented) The switch of claim 73, the information further including transmit and receive rates of the receive port and the transmit port.

76. (Previously Presented) The switch of claim 75, wherein the transmit and receive rates are based on a first defined period.

77. (Previously Presented) The switch of claim 76, the information further including transmit and receive rates of the receive port and the transmit port based on a second defined period, the second defined period being greater than the first defined period.

78. (Previously Presented) The switch of claim 77, the information further including the number of frames transmitted and received by the receive port and the transmit port.

79. (Previously Presented) The switch of claim 76, the information further including the number of frames transmitted and received by the receive port and the transmit port.

80. (Previously Presented) The switch of claim 73, wherein the information is added to the payload of the frame when the frame is traveling from an original source to an original destination.

81. (Previously Presented) The switch of claim 80, wherein the information is added to the frame when the frame is traveling from the original destination to the original source.

82. (Previously Presented) The switch of claim 73, wherein the transmit port is selected based on normal routing rules used for frames not having information added to the payload of the frame.

83. (Previously Presented) The switch of claim 82, wherein the transmit port is selected based on the source routing information used for frames having information added to the payload of the frame.

84. (Previously Presented) The switch of claim 83, wherein normal routing rules used for frames not having information added to the payload of the frame are used if the source routing information does not indicate a device directly connected to the transmit port.

85. (Previously Presented) The switch of claim 82, wherein the frame is destination addressed to a Fibre Channel well known address, and wherein a true destination address is determined by retrieving data from the frame payload.

86. (Previously Presented) The switch of claim 73, wherein the frame is transmitted over all of a plurality of equal cost routes.

87. (Previously Presented) The switch of claim 73, wherein the frame is a Fibre Channel extended link services frame.

88. (Previously Presented) The switch of claim 73, further comprising:

means for determining if the frame is at the original destination of the frame, and if so, modifying the frame to cause it to return to the original source.

89. (Previously Presented) The switch of claim 73, further comprising:

means for determining if the frame is at the original source of the frame, and if so, capturing the frame.

90. (Previously Presented) A non-transitory computer-readable storage medium comprising software that can be executed on a processor to cause the processor to:

add information to the payload of a frame received by a switch, the information including receive port identity, transmit port identity, switch identity and data about each of the traversed switching units of a plurality of switching units within the switch and the interconnections between the traversed switching units when a frame traverses multiple switching units, wherein each switching unit performs routing and switching functions.

91. (Previously Presented) The storage medium of claim 90, the information further including the speed of the receive port and the link cost of a link connected to the transmit port.

92. (Previously Presented) The storage medium of claim 90, the information further including transmit and receive rates of the receive port and the transmit port.

93. (Previously Presented) The storage medium of claim 92, wherein the transmit and receive rates are based on a first defined period.

94. (Previously Presented) The storage medium of claim 93, the information further including transmit and receive rates of the receive port and the transmit port based on a second defined period, the second defined period being greater than the first defined period.

95. (Previously Presented) The storage medium of claim 94, the information further including the number of frames transmitted and received by the receive port and the transmit port.

96. (Previously Presented) The storage medium of claim 93, the information further including the number of frames transmitted and received by the receive port and the transmit port.

97. (Previously Presented) The storage medium of claim 90, wherein the information is added to the payload of the frame when the frame is traveling from an original source to an original destination.

98. (Previously Presented) The storage medium of claim 97, wherein the information is added to the frame when the frame is traveling from the original destination to the original source.

99. (Previously Presented) The storage medium of claim 90, wherein the transmit port is selected based on normal routing rules used for frames not having information added to the payload of the frame.

100. (Previously Presented) The storage medium of claim 99, wherein the transmit port is selected based on the source routing information used for frames having information added to the payload of the frame.

101. (Previously Presented) The storage medium of claim 100, wherein normal routing rules used for frames not having information added to the payload of the frame are used if the source routing information does not indicate a device directly connected to the transmit port.

102. (Previously Presented) The storage medium of claim 99, wherein the frame is destination addressed to a Fibre Channel well known address, and wherein a true destination address is determined by retrieving data from the frame payload.

103. (Previously Presented) The storage medium of claim 90, wherein the frame is transmitted over all of a plurality of equal cost routes.

104. (Previously Presented) The storage medium of claim 90, wherein the frame is a Fibre Channel extended link services frame.

105. (Previously Presented) The storage medium of claim 90, wherein the software further causes the processor to determine if the frame is at the original destination of the frame, and if so, modifying the frame to cause it to return to the original source.

106. (Previously Presented) The storage medium of claim 90, wherein the software further causes the processor to determine if the frame is at the original source of the frame, and if so, to capturing the frame.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.